

REMARKS

In accordance with the foregoing, the claims have been amended to improve form and further to clarify salient features of the invention.

More particularly, in independent claims 10, 10, 13, 22, 25 and independent claims 4, 16, "to process" was changed to --to reduce--, to clarify that screen information is processed in order to lower the image quality. (See, page 13, lines 21-25 of the application). Particularly, as discussed beginning at page 20, lines 4 from the end, the invention teaches three principle methods of reducing or deteriorating image quality including pixel reduction, line reduction, and screen or frame reduction, Fig. 18 showing an example of pixel reduction, Fig. 19 showing an example of frame reduction and Fig. 20, moreover, showing a block diagram of a circuit for processing a reduction in frames. (See further discussion through page 23, lines 8 from the end). Further, in the above claims, an image processing apparatus has a storage device, and reduced such screen information is stored therein in accordance with detection of a copy guard signal.

Furthermore, in independent claims 2, 11, 14, 23, and 26, an image processing apparatus has a storage device, but screen information is prevented from being stored to the storage device in the circumstance of protection of a copy guard signal.

Furthermore, in independent claims 3, 12, 15, 24, and 27, an image processing apparatus has a storage device and the fact that the copy guard signal has been detected is stored, or a copy guard signal is added to the output of screen information defined in the event of detection of the copy guard signal.

No new matter is added in accordance with the foregoing amendments to the above recited independent claims and, accordingly, approval and entry of the amended claims are respectfully requested.

Independent claims 7, 8, 9, 19, 20, 21 are canceled.

ITEM 2: REJECTION OF CLAIMS 1-4, 6-16 AND 18-27 UNDER 35 USC § 102(b) FOR ANTICIPATION BY OKAMOTO ET AL.

ITEM 4: REJECTION OF CLAIMS 5 AND 15 UNDER 35 USC § 103(a) FOR OBVIOUSNESS OVER OKAMOTO ET AL. IN VIEW OF KITAZAWA HIROAKI

The rejections are respectfully traversed.

Okamoto et al. discloses a video recording/reproducing apparatus, but does not disclose:

- a. processing of screen information in order to lower or reduce image quality, and
- b. an image processing apparatus having a storage device storing the fact that the copy guard signal has been detected and/or reduced screen information.

Kitazawa Hiroaki discloses a reproducing apparatus (video printer), but does not disclose an image processing apparatus having a storage device storing a fact that that the copy guard signal has been detected or reduced screen information.

Accordingly, the references are submitted to be unrelated to the techniques of the present invention, as claimed herein; further, each of the independent claims patentably distinguishes thereover, as do the dependent claims, when the references are taken singly or in any proper combination.

CONCLUSION


It is submitted that the pending claims patentably distinguish over the art of record and, there being no other objections or rejections, that the application is in condition for allowance, which action is earnestly solicited.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: March 10, 2003

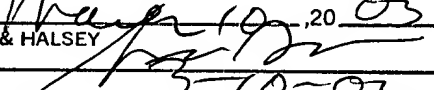
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STAAS & HALSEY

on March 10, 2003
By: 
Date: 5-10-03

VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE SPECIFICATION:**

Please AMEND the first full paragraph at page 1, as follows:

The present invention generally relates to an image processing apparatus which displays pictures or movies on a computer screen while recording a digital signal or outputting a video signal when the video signal is inputted. [And more] More particularly, the present invention relates to an image processing apparatus which prevents [from] copying when a video signal including a copy guard signal is inputted.

Please AMEND the paragraph beginning at page 2, beginning at line 6, as follows:

Fig. 1 shows a drawing for explaining an example of recording or outputting to duplicate [of] a digital signal. The digital picture provided through a line 180 using the internet has been downloaded to a hard disk apparatus 181, and reproduced on a computer screen 182 by an information device such as a personal computer.

Please AMEND the paragraph beginning at page 2, line 16, as follows:

Regarding an analogue signal, for example, in a VTR currently in use, there are software, or programs provided with some kind of copy guard process in order to protect against illegal copying. And it is possible to display the program normally on the television but the image quality, even if it was recorded, becomes worse at VTR for household use, then it is impossible to record the program on videotape substantially.

Please AMEND the paragraph beginning at page 3, line 7, as follows:

Fig. 2 shows a drawing for explaining an example of recording and duplicating of a video signal. The analogue picture provided on the videotape 190 currently in use can be reproduced normally on a television screen 183 using VTR (playback) 191 (Fig. 2 (a)), even if a copy guard is applied to the videotape.

Please AMEND the paragraph beginning at page 4, line 3, as follows:

A video signal including the copy guard signal 210 is shown in Fig. 4. The copy guard signal 210 has a higher level than the image signal 202 in voltage. Therefore, the AGC circuit of a recording and reproducing device recognizes the high voltage level of the copy guard signal 210 as [a] an ordinary level and makes the voltage level of image signal 202 lowered relatively when the video signal is inputted. Hence, the picture recorded becomes very dark, and it is possible to protect against illegal copying.

Please AMEND the paragraph spanning pages 5-6, as follows:

The picture stored at the storage apparatus such as the hard disk device 181 or CD-ROM device is reproduced at the computer screen, therefore, if the computer has the output terminal 221 for a video signal, it will be possible to record the picture on a videotape using VTR (recording). If [the] a storage apparatus with [the higher] a high speed memory [the larger] and sufficiently large enough comes into existence, even if the picture quality of the videotape becomes higher, it will be possible to store the picture keeping the high quality and to output the video signal reproducing the high quality picture. Fig. 7 shows a block diagram for explaining an example of the prior art. A video decoder 3 digitizes a video signal 240 inputted at an input terminal 220 for a video signal. [A] Digitized video information [digitized] is stored as a screen information at a video memory 5. When the video information is inputted, the input data from the video decoder 3 is stored into the video memory 5 [at] by a graphics controller 6. When a video information is outputted from a hard disk device 181, the output data is stored into the video memory 5 as every screen information [at] by the graphics controller 6. RGB signal is outputted to a display device 9 out of the graphics controller 6, and a digital signal is outputted to a video encoder 7 out of the graphics controller 6. A video signal 241 converted to analogue [out of] from digital, at the graphics controller 6, is outputted to an output terminal 221 for a video signal.

Please AMEND the paragraph beginning at page 7, line 18, as follows:

Fig. 10 is a time chart for explaining the video signal (digital) after A/D conversion. The signal 270 in Fig. 10 shows [what] that the copy guard signal 210 is dropped. When the analogue signal is converted to the digital signal, the highest voltage level of the image signal 202 is defined as a standard. Therefore, if there is no function for detecting a copy guard

signal, the high level in voltage of the copy guard signal is missing when YUV 252 is digitized.

Please AMEND the paragraph beginning at page 8, line 8, as follows:

When an output terminal for a video signal such as the output terminal 202 is provided to a computer, it is possible to output video signal of pictures on the computer screen. And a copy guard signal might be dropped, even though the video signal including the copy guard signal is inputted. [Then] Thus, there is a problem such as it would be likely to reproduce pictures or audio programs in spite of having a copy guard signal, if VTR for recording is connected to the output terminal for a video signal of a computer.

Please AMEND the paragraph beginning at page 10, line 2, as follows:

Fig. 1 is a drawing showing an example of recording or outputting to duplicate [of] a digital signal;

Please AMEND the paragraph beginning at page 12, line 2, as follows:

Preferred embodiments of the invention will be described below with reference to the accompanying drawings.

Please AMEND the paragraph beginning at page 12, line 11, as follows:

A graphics controlling circuit 6 controls both input and output of picture information, a series of screen information, using a video memory 5. After data is inputted to the graphic controlling circuit 6 through the video decoding circuit 3, the data is once stored at the video memory 5 as every screen information, then the data is outputted to a video encoding circuit 7.

Please AMEND the paragraph beginning at page 13, line 10, as follows:

A processing unit 4 shown in Fig. 12 has an image process instructing command 41 and a recording & reproducing command 42. The image process instructing command 41 instructs an image processing circuit 61 in graphics controlling circuit 6 to process the

screen information stored at the video memory 5. And the image processing circuit 61 processes the screen information.

Please AMEND the paragraph beginning at page 13, line 21, as follows:

When the image processing circuit 61 is instructed to process the screen information, to reduce a number of pixels (picture elements) [are reduced at] for each screen or [reduction] of screens for each frame ([it is] called [flame] frame reduction), [is performed] and as a result of the process, the image quality [has] is deteriorated.

Please AMEND the paragraph spanning pages 13-14, as follows:

The recording & reproducing command 42 controls to record or to reproduce the picture information. When the copy guard detecting circuit 2 detects a copy guard signal, the recording & reproducing command 42 is issued to the image processing circuit 61. And the image processing circuit 61 prohibits recording the picture information into the storage device 8, or stores [what] that the copy guard signal has been detected into the storage device 8.

Please AMEND the paragraph beginning at page 14, line 8, as follows:

When the picture information stored in the storage device 8 is reproduced and copy-guarded, the recording & reproducing command 42 is issued to the image processing circuit 61. And the image processing circuit 61 prevents the video encoding circuit 7 from outputting of the video signal or [makes] controls the video encoding circuit 7 to add a copy guard signal to the video signal.

Please AMEND the paragraph spanning pages 14-15, as follows:

In this way, the picture information is processed so as to reduce quality thereof and is stored, or is not recorded, when a copy guard signal is detected. And the picture information is processed and outputted, or the output video signal is stopped, or a copy guard signal is added when a video signal including a copy guard signal is inputted or what is stored is copy-guarded. Therefore, is possible to protect from illegal

copying using a computer or VTR for analogue recording.

Please AMEND the paragraph beginning at page 15, line 12, as follows:

Since the image quality is lowered, or outputting itself is prohibited, or a copy guard signal is added when a video signal having a copy guard signal or what is copy-guarded is outputted, the picture information with high quality is protected from being recorded at a VTR connected to the output terminal.

Please AMEND the paragraph beginning at page 17, line 3, as follows:

The display device 9 is connected to the graphic controller 6, and displays the computer output including the picture information consisting of an RGB signal, which is outputted at the graphic controller 6.

Please AMEND the paragraph spanning pages 20-21, as follows:

There are three principal methods:

pixels are reduced at each screen, [it is] called pixel reduction;

reduction in lines, [it is] called line reduction; or

reduction in screens, [it is] called [flame] frame reduction.

Please AMEND the paragraph beginning at page 21, line 2, as follows:

Fig. 18 shows an example of pixel reduction. If the reduction ratio is $1/2$, both in horizontal and in vertical [at] pixel reduction, [a] an aspect ratio or a resolution of screen is changed [out of] from (640X480) [dot into] dotes to (320X240) dots.

Please AMEND the paragraph beginning at page 21, line 11, as follows:

Fig. 19 shows an example of frame reduction. Frame reduction is processed with a reduction ratio, as follows. In case of the ratio= $1/2$, every other frame is reduced (i.e., cancelled), then the ratio, 30 frames/second becomes 15 frames/second.

Please AMEND the paragraph beginning at page 21, line 15, as follows:

Reduction ratio in frame reduction need not [to] be limited to 1/2 and [it] instead may be 2/3, for example, resulting in that a frame ratio[,] of 30 frames/second becomes 10 frames/second, as shown in Fig. 19.

IN THE CLAIMS:

Please CANCEL claims 7, 8, 9, 19, 20, and 21.

Please AMEND the following claims:

1. An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling input and output of picture information,
 comprising:
 - a copy guard detecting circuit detecting a copy guard signal included in an input video signal[;] ,
 - a video decoding circuit digitizing the input video signal[;] , and
 - an image processing circuit [processing] reducing screen information digitized by said video decoding circuit and storing the reduced screen information [processed] to [a] said storage device, in a case where said copy guard detecting circuit detects the copy guard signal.

2. (ONCE AMENDED) An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling input and output of picture information,
 comprising:
 - a copy guard detecting circuit detecting a copy guard signal included in an input video signal[;] ,
 - a video decoding circuit digitizing the input video signal[;] , and
 - an image processing circuit preventing from storing screen information digitized by said video decoding circuit to [a] said storage device, in a case where said copy

guard detecting circuit detects the copy guard signal.

3. (ONCE AMENDED) An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling input and output of picture information,
 comprising:
 a copy guard detecting circuit detecting a copy guard signal included in an input video signal[;] ,
 a video decoding circuit digitizing the input video signal[;] , and
 an image processing circuit storing to [a] said storage device, both screen information digitized by said video decoding circuit and the fact [that] of the detection by said copy guard detecting circuit [has detected] of the copy guard signal.

4. (ONCE AMENDED) [The] An image processing apparatus as claimed in claim 3, wherein the image controlling circuit [as claimed in claim 3], further comprises:
 a video encoding circuit encoding screen information and outputting a video signal;
and
 [wherein] said image processing circuit [farther] further comprises a circuit [processing] reducing the screen information in a case where an output of screen information stored in the storage device is ordered.

5. (ONCE AMENDED) [The] An image processing apparatus as claimed in claim 3, wherein the image controlling circuit [as claimed in claim 3], further comprises:
 a video encoding circuit encoding screen information and outputting a video signal;
and
 a prohibiting circuit preventing said video encoding circuit from outputting the video signal, in a case where an output of screen information stored in the storage device is ordered.

6. (ONCE AMENDED) [The] An image processing apparatus as claimed in claim 3, wherein the image controlling circuit [as claimed in claim 3], further comprises:
 a video encoding circuit adding a copy guard signal to the output of screen

information stored at the storage device, encoding and outputting a video signal.

10. (ONCE AMENDED) An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling screen information which is recorded at
 [a] said storage device, comprising:

an image processing circuit [processing] reducing the screen information in a
 case where the screen information is protected from copying[;] , and
 a video encoding circuit encoding the screen information processed by said
 image processing circuit and outputting a video signal.

11. (ONCE AMENDED) An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling screen information which is recorded at
 [a] said storage device, comprising:

a video encoding circuit encoding the screen information and outputting a video
 signal[;] , and
 a prohibiting circuit preventing said video encoding circuit from outputting the
 video signal, in a case where the screen information is protected from copying.

12. (ONCE AMENDED) An image processing apparatus, comprising:
a storage device recording picture information; and
 [Image] an image controlling circuit controlling screen information which is recorded at a
 storage device, comprising [:] a video encoding circuit adding a copy guard signal in a case
 where the screen information is protected from copying, encoding the screen information and
 outputting a video signal.

13. (ONCE AMENDED) In an image processing apparatus having a storage
device recording picture information and an image controlling circuit controlling input and
output of picture information, a [A] method for controlling image information, comprising [the
steps of]:

detecting a copy guard signal included in an input video signal;
 digitizing the input video signal;

[processing] reducing the digitized screen information [digitized], in a case where the copy guard signal has been detected; and

storing the reduced screen information [processed] to [a] said storage device.

14. (ONCE AMENDED) In an image processing apparatus having a storage device recording picture information and an image controlling circuit controlling input and output of picture information, a [A] method for controlling image information, comprising [the steps of]:

detecting a copy guard signal included in an input video signal;

digitizing the input video signal; and

preventing [from] storing [screen] picture information to [a] said storage [means] device, in a case where the copy guard signal has been detected.

15. (ONCE AMENDED) In an image processing apparatus having a storage device recording picture information and an image controlling circuit controlling input and output of picture information, a [A] method for controlling image information, comprising [the steps of]:

detecting a copy guard signal included in an input video signal;

digitizing the input video signal; and

storing to [a] said storage device, both screen information digitized and fact that the copy guard signal has been detected.

16. (ONCE AMENDED) A method for controlling image information as claimed in claim 15, further [comprises the steps of] comprising:

[processing] reducing the screen information stored at the storage device; and outputting a video signal of the reduced screen information [processed].

17. (ONCE AMENDED) A method for controlling image information as claimed in claim 15, further [comprises the step of] comprising:

preventing [from] outputting of the video signal, in a case where an output of screen information₁ stored at the storage device₁ is ordered.

18. (ONCE AMENDED) A method for controlling image information as claimed in

claim 15, further [comprises the step of] comprising:

outputting the screen information as a video signal; and
adding a copy guard signal to the output of the video signal.

22. (ONCE AMENDED) In an image processing apparatus having a storage device recording picture information and image controlling circuit controlling input and output of picture information, a [A] method for controlling image information, comprising [the steps of]:

recording digitized screen information [digitized] to said storage device;
[processing] reducing the digitized screen information, in a case where the digitized screen information is protected from copying; and
outputting a video signal of the reduced and digitized screen information [processed].

23. (ONCE AMENDED) In an image processing apparatus having a storage device recording picture information and image controlling circuit controlling input and output of picture information, a [A] method for processing image information, comprising [the steps of]:

recording digitized screen information [digitized] to said storage device; and
preventing [from] outputting of the video signal, in a case where the screen information is protected from copying.

24. (ONCE AMENDED) In an image processing apparatus having a storage device recording picture information and image controlling circuit controlling input and output of picture information, a [A] method for processing image information, comprising [the steps of]:

recording digitized screen information [digitized] to said storage device;
outputting the digitized screen information as a video signal; and
adding a copy guard signal to the output [of the] video signal, in a case where the screen information is protected from copying.

25. (ONCE AMENDED) A computer readable storage medium storing a computer-readable program[s, where said programs make] which controls a computer

system to execute an image controlling process, [said process comprising the steps of] by:
detecting a copy guard signal included in an input video signal; and
[processing] reducing screen information, digitized out of the input video signal, in a case where the copy guard signal is detected.

26. (ONCE AMENDED) A computer readable storage medium storing a computer-readable program[s, where said programs make] which controls a computer system to execute an image controlling process, [said process, comprising the steps of] by:
detecting a copy guard signal included in an input video signal; and
preventing [from] storing of the input video signal, as digitized, in a case where the copy guard signal is detected.

27. (ONCE AMENDED) A computer readable storage medium storing a computer-readable program[s, where said programs make] which controls a computer system to execute an image controlling process, [said process, comprising the steps of] by:
detecting a copy guard signal included in an input video signal; and
storing to a storage device, both digitized screen information [digitized] and fact that the copy guard signal has been detected.